Oregon Water Resources Department

Municipal Reclaimed Water Registration Form

*A water use permit may not be required if the water being used is reclaimed water as defined in ORS 537.131 **and** the reclaimed water use is both authorized by the Oregon Department of Environmental Quality (DEQ) **and registered** with Oregon Water Resources Department (WRD)*(ORS 537.132). *Currently there is no fee for registering.*

*Complete and send this Registration Form **to the DEQ permit writer** managing the wastewater treatment facility discharge permit. DEQ will review and sign this Registration Form prior to sending it on to WRD in Salem. A response letter will be sent by WRD to all parties within 60 days of receipt.*

***Instructions** are available to guide you. If you need assistance, please call 503-986-0900 and ask for the "Water Reuse Coordinator" or contact the local watermaster in your county. Insert "N/A" if the requested information does not apply to your situation.*

1. Name of "Registrant". Who will use the reclaimed water?

Name of Reclaimed Water User: Klamath Energy, LLC

County where reclaimed water use will occur: Klamath

Mail Address: 4940 Highway 97 South, (*Street/P.O. Box*) Klamath Falls, (*City*) OR (*State*) 97603 (*Zip*)

Daytime Telephone: (541) 883-3118 *E-mail:* terance.chapman@avangrid.com

2. Does the reclaimed water user own the land where the use will occur?

☐ YES ■ NO If no, provide the landowner's name and contact information.

Landowner Name: Collins Products, LLC

Mail Address: 6410 Highway 66, (*Street/P.O. Box*) Klamath Falls, (*City*) OR (*State*) 97601 (*Zip*)

Daytime Telephone: (541) 884-2241 *E-mail:*

3. Are there existing water rights on the same land where the use will occur?

■ YES (provide information below) ☐ NO

Application No. G-437, S-6913 *Permit No.* G-342, S-4349

Certificate No. 27805, 77011 *Decree vol. & pg.* 55-234

*Will the reclaimed water be used **instead of** existing water rights OR used to **supplement** the continued use of the existing water rights?* N/A, user is leasing portion of property; not water right holder

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4. **Has DEQ issued a Municipal Wastewater Treatment Facility Discharge Permit authorizing the use of reclaimed water?** (*If yes, provide permit number*)

☒ YES *NPDES Permit No.* 100701 or *WPCF Permit No.* N/A

Permit Effective Date: 12/1/2020 *Permit Expiration Date:* 9/30/2025

DEQ Region: (Check one) ☐ *Northwest Region* ☒ *Eastern Region* ☐ *Western Region*

☐ NO *Permit application was submitted to DEQ, but not yet issued.*

☐ NO *Permit application has not been submitted to DEQ.*

5. **Who is treating and supplying the reclaimed water to the user?**

Name of Supplier: Klamath Falls WWTP *Telephone No.* (541) 883-5386

Treatment Facility Name: Klamath Falls WWTP *Telephone No.* (541) 883-5386

Mail Address: 1200 S. Spring Street | Klamath Falls | OR | 97601

Street/P.O. Box | *City* | *State* | *Zip*

6. **Which water provider supplies potable municipal water to the city/community that produces the sewage entering the treatment facility?**

Municipal Water Provider: Klamath Falls Water Department *Telephone No.* (541) 883-5388

Source(s) of Municipal Water: Groundwater from 13 wells

(stream name, groundwater, and/or reservoir name)

7. **Will the use of reclaimed water occur inside or outside the water service boundaries of the potable municipal water provider identified above in Question 6?**

☐ INSIDE ☒ OUTSIDE

8. **What is the length in years of the agreement/contract between the reclaimed water user and the reclaimed water supplier?** 25

Describe any conditions in the agreement that limit use of the reclaimed water.

If reclaimed water user returns cogeneration blowdown water to WWTP that does not meet agreed upon water quality requirements, the City of Klamath Falls may limit reclaimed water supply until the issue can be resolved. Low WWTP flows also limit recycled water

9. **Please describe the transmission system that delivers reclaimed water from the wastewater treatment facility to the place of reclaimed water use.**

Pump station located at the SSWTP pumps recycled water approx. 5 mi to the Klamath Energy facility. The plant's two pump system has the capacity to meet the cogeneration facility's maximum demand of 4.6 MGD. See section 5 of the RWUP for more details.

(Include type of construction of diversion works/pump capacity, length and dimensions of supply ditches/ pipelines)

10. What is the Intended Use(s) of Reclaimed Water?

Industrial cooling water
(irrigation, aquifer recharge, wetlands, industrial, cooling, aquifer storage & recovery, etc.)

Irrigation Total Acres: N/A *What type of crop?* N/A
(hay, pasture, golf course, wood fiber, etc.)

What is the irrigation application system? N/A
(flood, center pivot, wheel line, drip, micro-sprinklers)

How much Reclaimed Water will be used? 1390 gpm average flow, maximum of 1682 mgal/year
(cubic feet per second, OR gallons per minute)

Date use began or will begin: July 2000 *Period of use (month/day): from* 1/1 *to* 12/31

11. What are the water user's motivations to use reclaimed water?

- ☐ My existing water rights are "junior" and not always reliable.
- ☐ Another water source is available, but reclaimed water is less expensive.
- ☑ Reclaimed water is the only source available and enables the use listed in Question 10.
- ☐ Reclaimed water allows a WRD transfer of existing water rights to a different location.
- ☐ Reclaimed water use reduces demand on the local municipal water supply.
- ☑ To assist the treatment facility in meeting DEQ regulatory permit requirements.
- ☐ To recharge the aquifer or store water in the aquifer for future recovery.
- ☐ Other (describe):

12. Describe the historic reclaimed water disposal method.

A) Into which stream was the reclaimed water discharged? to WWTP;mix w/effl to river

B) Has the reclaimed water been discharged into the stream for 5 or more years?

■ YES ☐ NO

C) Where did the treated wastewater historically enter the stream?
No change in location, Klamath River discharge at RM 253
(Township, Range and Section, or distance from landmark, or river mile, or Lat/Long)

D) Does the amount (rate in gpm or cfs) of reclaimed water proposed for use under this registration represent more than 50% of the total average annual flow of the stream?

☐ YES ■ NO ☐ UNKNOWN

Source of information used to answer this? USGS data @ site11507500 and WWTP DMRs

13. Is the required map attached showing the reclaimed water transmission system and place of use?

■ YES ☐ NO (If No, please prepare and attach map).

The Registration Form is not complete without an adequate map.
See map requirement explanation on page 4.

14. MAP REQUIREMENTS:

This registration must be accompanied by a map, or maps, to show the location of the wastewater treatment facility, location of reclaimed water transmission system (pipelines, canals, etc.) and the place of reclaimed water use. Features of the map(s) should include the following:

- A north arrow.
- Drawn to scale at not less than 4" = 1 mile, with the scale identified.
- Township, Range, Section, Quarter-Quarters, and tax lot number(s).
- Place of use shown by Quarter-Quarter section with shading or diagonal lines.
- Acres, if land application, per Quarter-Quarter section (approximate if not certain).
- Location of main canals or pipelines to and within the reclaimed water use area.
- Streams and roads identified if they cross through the map.
- Other obvious features that would help someone in the field locate the place of use.
- A legend.

**A map showing the wastewater treatment facility, transmission system, and place of use at a scale of 4" = >1 mile is fine only if a second map is provided showing the place of use at not less than 4" = 1 mile.*

15. ADDITIONAL COMMENTS: Provide additional information here or attach additional pages.

16. Signatures of Registrant and Reclaimed Water Supplier:

I/We certify that the information provided in this Registration Form is an accurate representation of the proposed reclaimed water use to the best of my knowledge:

Registrant Printed Name: GREGORY DOLEZAL *Title:* SR. DIRECTOR

Registrant Signature: [signature] *Date:* 8-26-22

Supplier Printed Name: Chris Claymore *Title:* Manager

Supplier Signature: [signature] *Date:* 08252022

NOTE: Once completed and signed, keep a copy and send this form to the DEQ permit writer responsible for the wastewater treatment facility permit. DEQ will sign and forward the form to WRD in Salem. A response letter will be sent by WRD to all parties within 60 days.

This section is to be completed by DEQ

17. Signature of DEQ Water Quality Manager:

Date registration form received at DEQ: 8-26-2022

Pursuant to ORS 537.132 DEQ has:

a) **Authorized the use of reclaimed water (referred to by DEQ regulations as "recycled water") as evidenced by the NPDES or WPCF permit issued and described below.**

Permit Number: 100701 *DEQ File Number:* 46763

Printed DEQ Permit Writer's Name: Justin Steger

Mail Address: 475 NE Bellevue Dr. Suite 110 (Street/P.O. Box) Bend (City) OR (State) 97701 (Zip)

Telephone: 541-633-2016 *E-mail:* justin.steger@deq.oregon.gov

b) **Consulted with State Department of Fish and Wildlife and determined this use of reclaimed water shall not have a significant negative impact on fish or wildlife.**

ODFW contact name: Ben Ramirez

ODFW contact phone number: 541-883-5732

c) **Determined the use of reclaimed water is intended to improve the water quality of the receiving stream.**

The reclaimed water is (e.g. too warm for salmonids): routed to the Klamath Co-gen to offset alternative water supply use and reduce discharge volume from the WWTF.

I certify the provisions of ORS 537.132(1)(a)(b) and (c) for this application are satisfied.

Date 9/23/2022

DEQ Water Quality Manager Signature

Mike Hiatt

DEQ Water Quality Manager's printed name

Once signed by DEQ, this completed form is to be sent to:

Oregon Water Resources Department
C/O Water Reuse Coordinator
725 Summer St. NE, Suite A
Salem, OR 97301-1266

RECYCLED WATER USE PLAN
THE CITY OF KLAMATH FALLS
KLAMATH ENERGY, LLC
SEPTEMBER 2022

Contact Information:
City of Klamath Falls Wastewater Division Manager – (541) 883-53-86
PKE (Industrial Recycled Water User) Control Room – (541) 883-3118 Ext. 1
PKE 24-hour emergency number – (541) 882-4727

1.0 PURPOSE AND INTRODUCTION

This Recycled Water Use Plan provides a description of the recycled water use program at the Spring Street Wastewater Treatment Plant (SSWTP) and describes the means of compliance with OAR 340-55. This plan supersedes previous recycled water use plans. The City of Klamath Falls (City) provides recycled water to Klamath Energy LLC (PKE) cogeneration facility.

The SSWTP is considered a conventional activated plant with primary, secondary, and disinfection processes. As described in the 2008 facility plan, the SSWTP's influent is comprised of approximately 62 percent residential, 31 percent commercial, and 7 percent industrial flows. The SSWTP treatment facilities include an influent pump station, manual bar screen, grit removal channel, fine screening, primary sedimentation, aeration basin, two secondary clarifiers, disinfection system, a dissolved air flotation (DAFT) unit, two anaerobic digesters, sludge thickening, drying beds and composting. The wastewater undergoes biological treatment and chlorination to produce an oxidized and disinfected treated effluent that meets all Class C recycled water standards, the requirements of OAR Chapter 340, Division 55, "Regulations Pertaining to the Use of Recycled Water (Treated Effluent) from Sewage Treatment Plants.", and the city's NPDES permit table A-2. A flow schematic of the existing system is included in Appendix A of the NPDES Permit Fact Sheet. The City is currently planning and implementing upgrades to the SSWTP to improve capacity, redundancy, resiliency, and safety issues. Changes related to these upgrades can be found in current STP Upgrade Project planning and design documentation (see the 2018 Preliminary Design Report for an overview of proposed and planned upgrades).

A pumping station and pipeline were constructed in 2001 to deliver treated effluent to a PKE's cogeneration facility. The city provides water for PKE's cooling water needs using recycled water from the SSWTP. A large portion of the SSWTP's treated effluent is used as cooling water for the PKE steam condenser cooling water system where a large percentage of the effluent is evaporated. PKE requires an average of 2.0 million gallons per day (MGD) to a maximum of 4.25 MGD of water for process cooling. PKE generates power at the wholesale level for municipal and regulated utilities and sells steam to the nearby Collins Products wood products facility. PKE is located approximately one-half mile west of Highway 97 and one mile south of Highway 66 on Collins Products property in Klamath County. The recycled cooling and blowdown water from the cogeneration facility is routed back to the SSWTP dechlorination facility and mixed with plant effluent prior discharge into the Klamath River at Outfall 001.

2.0 CONDITIONS FOR INDUSTRIAL USE OF RECYCLED WATER

OAR Chapter 340, Division 55, specifies the requirements applicable to PKE's use of SSWTP effluent as recycled water.

To maintain compliance with the applicable requirements in Chapter 340, Division 55, the City and PKE shall satisfy the following conditions:

1. The City having control over the treatment and distribution of recycled water distribute recycled water only for the beneficial purposes described in this rule and take all reasonable steps to ensure that the recycled water is used only in accordance with the standards and requirements of the rules of this division. [OAR 340-055-12 (1)]

2. The city will submit an annual report to the DEQ, using the DEQ-approved recycled water annual report form. Including the monitoring data and analytical laboratory reports for the previous year's monitoring required under Schedule B of the City's NPDES permit.

3. The recycled water is used for cooling tower operations at a daily average rate of 2.0 MGD. The volume of recycled water delivered to PKE is recorded daily.

4. The quality requirements outlined for Class C recycled water are to be met at all times. In the event the Class C recycled water quality requirements are not met, recycled water shall not be delivered to PKE. Delivery will be reinstated when the quality requirements of Class C recycled water quality requirements can be met. Supplemental potable water, sourced from the City's water system through a dedicated water line from the City's Conger well field, may also be used as supplemental cooling water and blended with treated plant effluent at the effluent pump station during periods of low treatment plant flow to meet PKE's recycled water demands. Typical supplemental potable water demand averages approximately 0.3 MGD. Blending consists of discharging supplemental potable water (i.e., City Water) into the plant effluent pump wet well through an air gap pipe discharging approximately 3 feet above the maximum water level (photos in Attachment A) where the supplemental water mixes with the treated plant effluent being sent to PKE (see schematic in Attachment B). The blended water is pumped through a single shared pipeline from the SSWTP to the PKE facility. The previous Plan with blending language was approved by DEQ on July 6, 2000. The supplemental water supply will not consist of sewage treated effluent in part or in whole. The city will include in its monthly reports to the Oregon Department of Environment Quality effluent and other data required for authorization to use recycled water at PKE. The city will record any incidents where recycled water could not be delivered to PKE because of quality.

5. The recycled water delivered to the PKE will not be used for human consumption [OAR 340-55-0017 (5)]. Signs are posted around the perimeter of the PKE, around PKE's storage pond, and at offsite above-ground locations indicating that recycled water is being used and is not safe for drinking or extended body contact (e.g., bathing or swimming). The signs will state "ATTENTION: RECYCLED WATER – AVOID CONTACT – DO NOT DRINK." A fence perimeter around the PKE facility provides a barrier preventing public access (Attachment C). Fences on the much larger Collin Products property that PKE's facility sits on provide additional barriers to public access.

6. Only plant effluent that has received full secondary treatment and supplemental potable make-up water (to be used when needed) will be used for recycled water. There is no bypassing of wastewater treatment plant processes to provide recycled water [OAR 340-55-030 (1)].

7. In the event of loss of power, power loss alarms for process equipment throughout the SSWTP will alert operations staff through the facility's SCADA system and auto dialer system [OAR 340-55-030 (2)]. The SSWTP's backup power system which consists of a 500KW diesel generator will supply power if the primary power source is lost [OAR 340-55-030 (3)]. If the

SSWTP cannot meet the quality requirements of Table A-2 "Class C recycled Water" because of a power failure or failure of backup power systems to engage, recycled water will not be delivered to PKE. SSWTP staff will assess power outage impacts to treatment processes and treated effluent water quality and delivery will be reinstated once operations staff determine the SSWTP can meet the quality requirements as defined by permit. Recycled water quality is monitored using grab samples for total coliform and pH and with continuous measurements for total residual chlorine.

8. The SSWTP has sufficient process redundancy and monitoring systems as well as approved monitoring practices to prevent inadequately treated water from being delivered to the PKE [OAR 340-55-030 (4)].

9. All piping, valves and portions of the recycled water system marked to prevent cross contamination with potable water [OAR 340-55-030 (5)]. There are no connections between the City's potable water system and the distribution system carrying the recycled water [OAR 340-55-030 (6)] except where supplemental potable water is provided, as needed, through an air-gapped discharge into the SSWTP effluent pump wet well (see Attachments A and B).

10. The City or PKE will not knowingly release recycled water to surface or groundwater [OAR 340-55-020] except as permitted under the City's NPDES permit.

11. The city will cease delivery of recycled water if it determines that PKE is not meeting the requirements of OAR 340-55. Delivery will be reinstated when the PKE demonstrates to the City that it will and can comply with the requirements of OAR 340-55.

12. The city will comply with the monitoring requirements set forth in Schedule B of its NPDES permit. See City of Klamath Falls Wastewater Treatment Department Quality Assurance/Quality Control Plan for sampling and analytical procedures, instrument servicing and maintenance schedule and calibration practices. Recycled water sampling locations are indicated on the process flow diagram in Attachment B.

13. Non-compliance with any provision of OAR 340-55 will be reported orally within 24 hours after the City becomes aware of an incident of noncompliance and a written report will be provided within five days after the oral report. PKE will report to the SSWTP any violation of OAR 340-55.

14. Compliance with these rules shall not create a water right for PKE under ORS Chapters 536, 537, 539 or 540 [OAR 340-55-017 (4)].

3.0 MAINTENANCE OF RECYCLED WATER SYSTEM AND TREATMENT FACILITY

The City Wastewater Division employs 10 wastewater operators between its collections and treatment systems. Operators are responsible for day-to-day operations and routine maintenance of the system and city facilities. The City's Maintenance Division also provides specialized maintenance workers for larger tasks requiring special skills, and or knowledge, this staff includes electricians, plumbers, carpenters, millwrights, and laborers.

The entire treatment process, along with the recycled water system is monitored through the SCADA computer system. This allows operators to track the performance trends of the equipment and provides an alarm system for any disruptions of the treatment and or recycled water system. Maintenance of equipment is scheduled at appropriate intervals and tracked using a digital Enterprise Asset Management

(EAM) system. All operators are trained in the use of the EAM system to ensure maintenance tasks are being completed, and equipment is in good operational health. A new electronic operation and maintenance manual is being completed as part of the current upgrades to the facilities.

4.0 MONITORING, SAMPLING, AND REPORTING

Monitoring of the recycled water stream is conducted according to Table B14 of the SSWTP's NPDES permit. This includes daily monitoring of total flow (MGD), Chlorine Used (lbs.), total residual chlorine (mg/L), twice weekly pH reporting, and weekly total coliform analysis.

Sampling is performed using ultra-clean sampling protocols. Samples for chlorine residual, pH, and total coliforms are analyzed in-house at the SSWTP lab. Samples for these parameters are taken from a sampling port branching off of the effluent pumps discharge line (see Attachment B). This sampling port is connected to a sampling line that runs to the SSWTP lab allowing for TRC to be monitored continuously. The monitoring point for the recycled water stream's water quality parameters occurs post-blending to "be representative of the recycled water delivered for beneficial reuse" as required in Schedule B Section 9 of the SSWTP's NPDES permit. Recycled water flow is measured using an electromagnetic flow meter on the discharge piping of the effluent pump station pumps on the recycled water stream flowing to PKE (keynote 3 in Attachment B).

All the data collected on the recycled water parameters is reported according to the NPDES permit requirements as part of the recycled water annual report.

5.0 RECYCLED WATER DELIVERY SYSTEM

A pump station located at the SSWTP delivers recycled water to PKE. The station consists of a wet well and two cooling water pumps. The city also utilizes the potable water supply for situations when quality, or quantities cannot be met. The potable water is fed directly into the stations wet well. This flow is measured and reported. A flow control tank is located along the pipeline approximately three-quarters of the way from the SSWTP to PKE. The purpose of this tank is to act as a buffer for pressure surges in the pipeline and to maintain sufficient pressure for flow from the tank to PKE. The route for the pipeline crosses the city limits through the Urban Growth Area into Klamath County jurisdiction (Attachment C). Within the City limits, the recycled water pipeline route is within existing City Street rights-of-way including an established sewage under-bridge crossing of the Klamath River. The recycled water pipeline parallels an existing City sewer force main through primarily industrial and commercial land uses. In the vicinity of the intersection of Highway 140 and Highway 97, the recycled water pipeline leaves the City sewer easement and extends south along the east side of Highway 97 to a point east of the Collins property. The pipeline proceeds west under Highway 97 and across Collins' property to PKE.

6.0 PKE COGENERATION SITE DESCRIPTION

PKE consists of an energy facility; a high voltage switchyard, transmission line; cooling water, potable water, natural gas, wastewater, steam and condensate return pipelines. The energy facility is a combined cycle cogeneration plant with two high efficiency combustion turbines (CT), two waste heat recovery boilers and one steam turbine to generate electrical power and process steam. PKE has a nominal generating capacity of approximately 500 MW (net) at annual average operating conditions.

7.0 COOLING SYSTEM

PKE requires wastewater for process cooling. Cooling water is used primarily to condense steam from the power cycle. The main components of the cooling system are an eight-cell cooling tower, a steam condenser and auxiliary heat exchangers.

Water to be cooled from the condenser and heat exchangers is continuously circulated to the top of the cooling tower where it is distributed over a film type fill section. Film fill consists of closely packed corrugated, vertical sheets, which causes the water to flow down through the tower in a very thin film. Air is induced into the cells of the cooling tower using fans. As the relatively dry air mingles with the warm film flow water, a portion of the water evaporates. The evaporation releases heat from the cooling water, approximately 1000 BTUs per pound of water evaporated. As the water evaporates, the salt content of the cooling water concentrates.

To prevent corrosion and deposits of salt, a portion of the cooling water is continuously bled to release salt, in the form of cooling tower blowdown. The blowdown is continuously replaced with new cooling tower makeup supplied by recycled water from the SSWTP. The cooling water operates at a concentration of two times that of the makeup water (two cycles of concentration) depending on makeup water quality.

A very small portion of cooling water droplets, referred to as cooling tower drift is entrapped in the stream of induced air and exits the cooling tower with the evaporated water. It is estimated that the cooling tower generates a drift at a rate of 0.0005 percent of the circulating cooling water flow rate, or approximately 745 gallons per day. Mist eliminators that resemble chevron or honeycomb passage entraps water droplets to minimize drift from the cooling tower.

8.0 CHEMICAL ADDITION

Chemicals are added to the recycled water to control biological growth, corrosion, and salt deposits (scale). Chlorine Dioxide or Sodium Hypochlorite is added to the circulating water in the cooling tower to control typical biological growth – algae, fungi, and bacteria. Biological growth and salt deposits inhibit heat transfer in process equipment and, in some cases, assists in corrosion. Recycled water returned by the PKE as cooling tower blowdown requires dechlorination prior to discharge at SSWTP.

Chlorine is continually added to the cooling system to maintain a chlorine residual of approximately one milligram per liter (mg/l). Sulfuric acid is also added to the cooling system to maintain the pH of the concentrating recycled water in the neutral range and to control the formation of calcium deposits. Corrosion inhibiting chemicals such as a polyphosphate compound are added to control corrosion in the cooling system. Lastly, organic polymer such as polyacrylates is used to control scale.

Cooling tower blowdown is dechlorinated to reduce the total chlorine residual to an acceptable discharge level. This dechlorination is facilitated by mixing a neutralizing compound, with the blowdown and other SSWTP effluent at a manhole prior to the City's outfall to the river (see Attachment B). As part of the reissuance of the SSWTP's NPDES permit, more stringent Total Residual Chlorine (TRC) limits have been set for the outfall discharge to the river. Currently, the SSWTP cannot reliably meet the new TRC limits, however the SSWTP has received a compliance schedule to provide the necessary time to implement dechlorination improvements to meet these more stringent new limits. The City is currently implementing a more robust control system for dechlorination to effectively manage the dose of the neutralizing compound (sodium bisulfite). This control system will initially be calibrated based on bench-scale dose-response testing and include a new bisulfite analyzer downstream of the dosing location to control bisulfite dosing pump speeds and supplement the TRC analyzer that is currently used. If additional improvements are needed, a feed-forward control loop may be implemented with additional analyzers added upstream of the dosing point. See "Alternatives for Dechlorination Improvements at Spring Street Wastewater Treatment Plant Technical Memorandum" for additional information.

Dechlorination improvements are expected to be completed by December 2024 as noted in the TRC compliance schedule of the SSWTP's modified NPDES permit.

9.0 RECYCLED WATER RETURN SYSTEMS

PKE has two separate wastewater systems for returning recycled water as cooling tower blowdown and discharging other wastewater streams to the SSWTP: The recycled return (blowdown) wastewater flow averages 0.95 MGD from PKE on an annual basis. In addition to the blowdown return flow, a combined sanitary and other process wastewater flow from PKE to the SSWTP headworks at a flow rate of approximately 0.25 MGD.

Cooling tower blowdown and sanitary/process wastewater is returned to the SSWTP via 10-inch and a 6-inch pipeline respectively. The 10-inch blowdown wastewater pipeline includes a flow control tank integral with the effluent delivery flow control tank to provide pressure control and flow stabilization of the return blowdown. These two pipelines parallel the recycled water pipeline on Collins' property and along Highway 97. In the vicinity of the intersection of Highway 140 and Highway 97, the 6-inch sewer line intercepts the City's existing sewer main. The 10-inch blowdown pipeline continues along the City's sewer line easement back to an intercept point at the SSWTP where it is dechlorinated prior to entering the outfall pipe to the river.

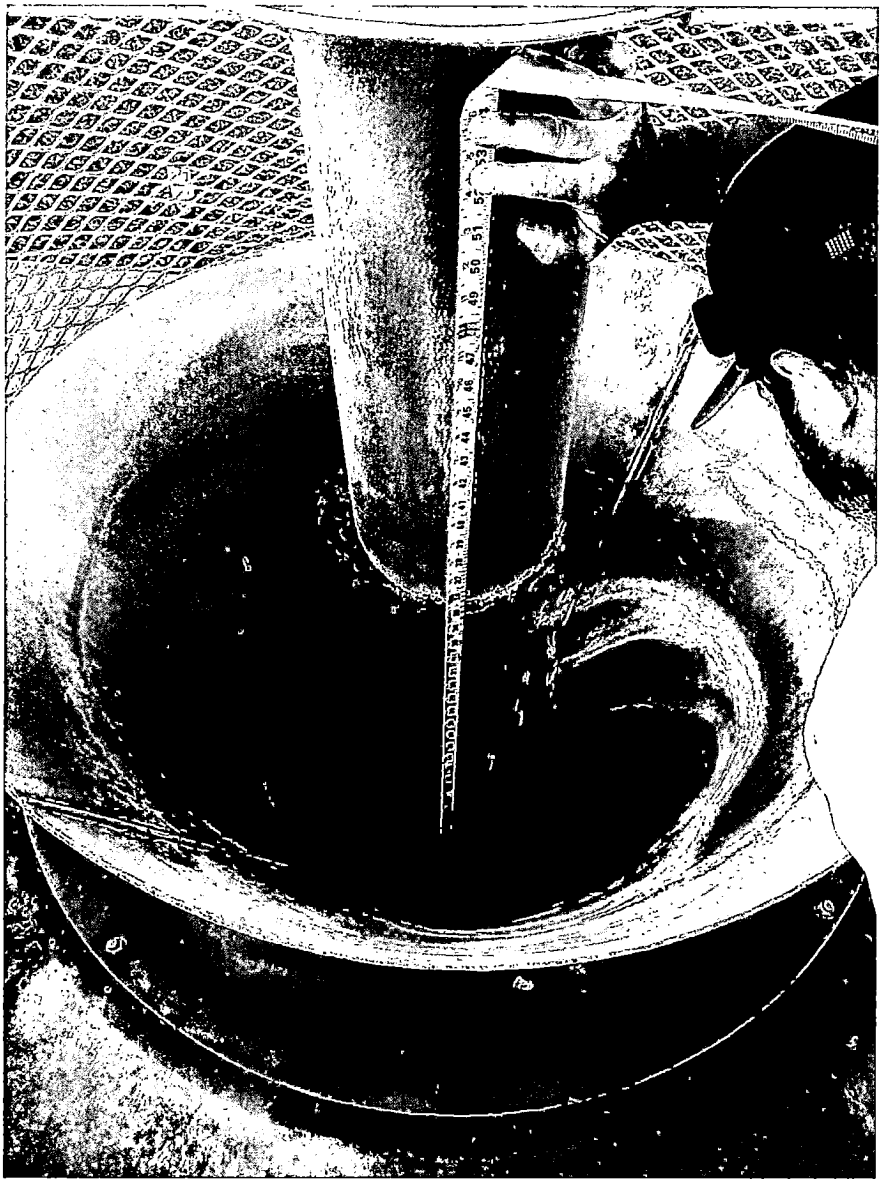
10.0 STORAGE SYSTEM

Stormwater collected onsite is isolated from treated PKE wastewater and retained for evaporation or plant use in an onsite pond. PKE includes a 2.4-million-gallon lined retention pond for the collection and on-site evaporation/use of stormwater runoff. The 22-year-old pond is double lined using a synthetic membrane. An ancillary function of the pond is to store excess recycled water during periods when the SSWTP can supply more flow than PKE needs (e.g., summer days). This surplus of recycled water is used to augment SSWTP recycled water flow when it is less than PKE's requirements (e.g., during summer nights). The pond and cooling tower basin are interconnected to allow flow in either direction, as required. Stormwater and recycled water retained in the pond are cycled periodically to maintain consistent water chemistry between the pond and cooling tower basin.

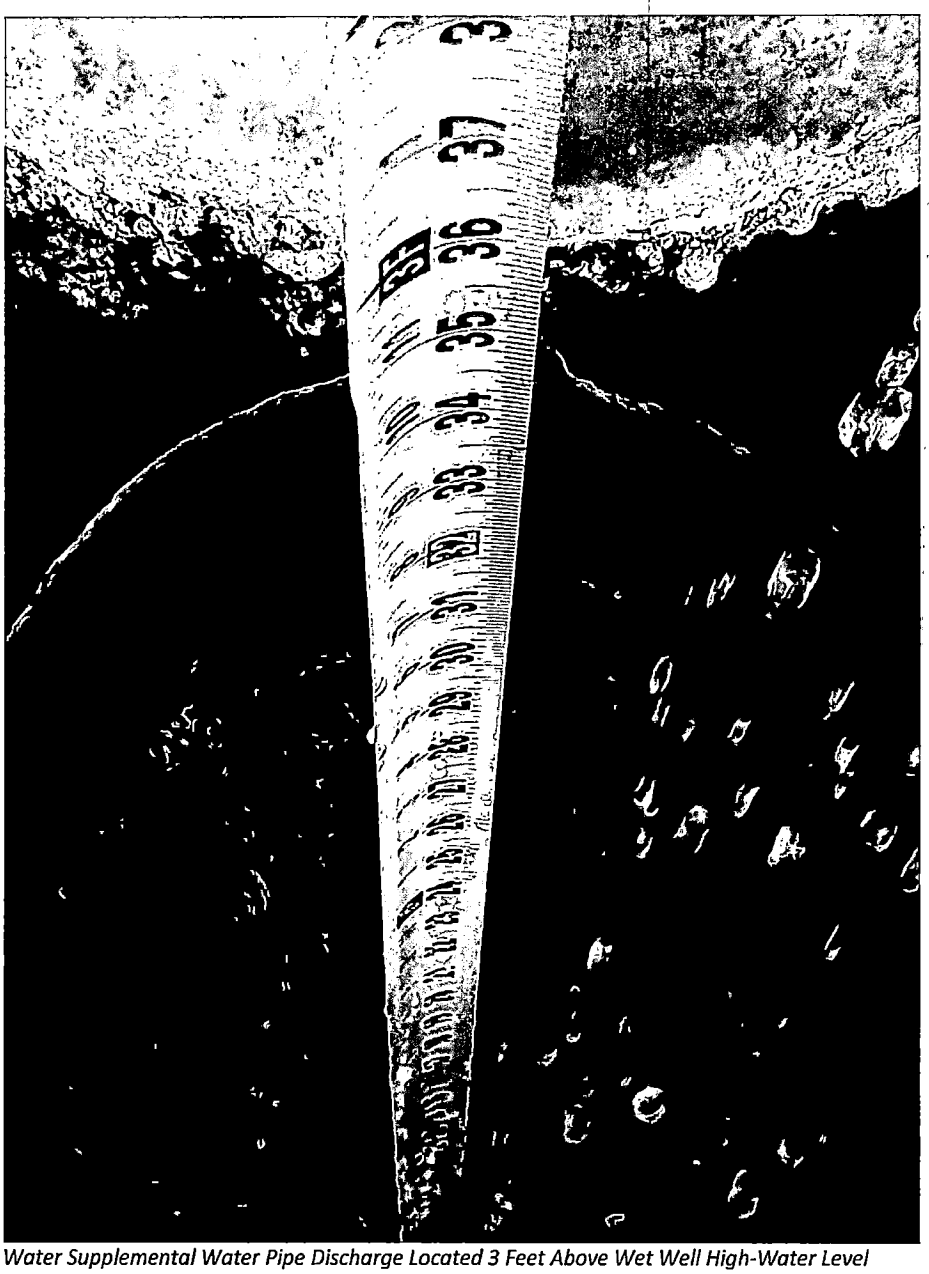
11.0 LANDSCAPE IRRIGATION

PKE no longer uses recycled water for landscape irrigation. See attached letter from PKE's Director, dated July 15, 2022 (Attachment D).

Attachment A – Supplemental City Water Air Gap Discharge Connection Photographs



City Water Supplemental Water Pipe Discharge into Effluent Wet Well for Pumping of Recycled Water



City Water Supplemental Water Pipe Discharge Located 3 Feet Above Wet Well High-Water Level

Attachment B – Recycled Water Schematic

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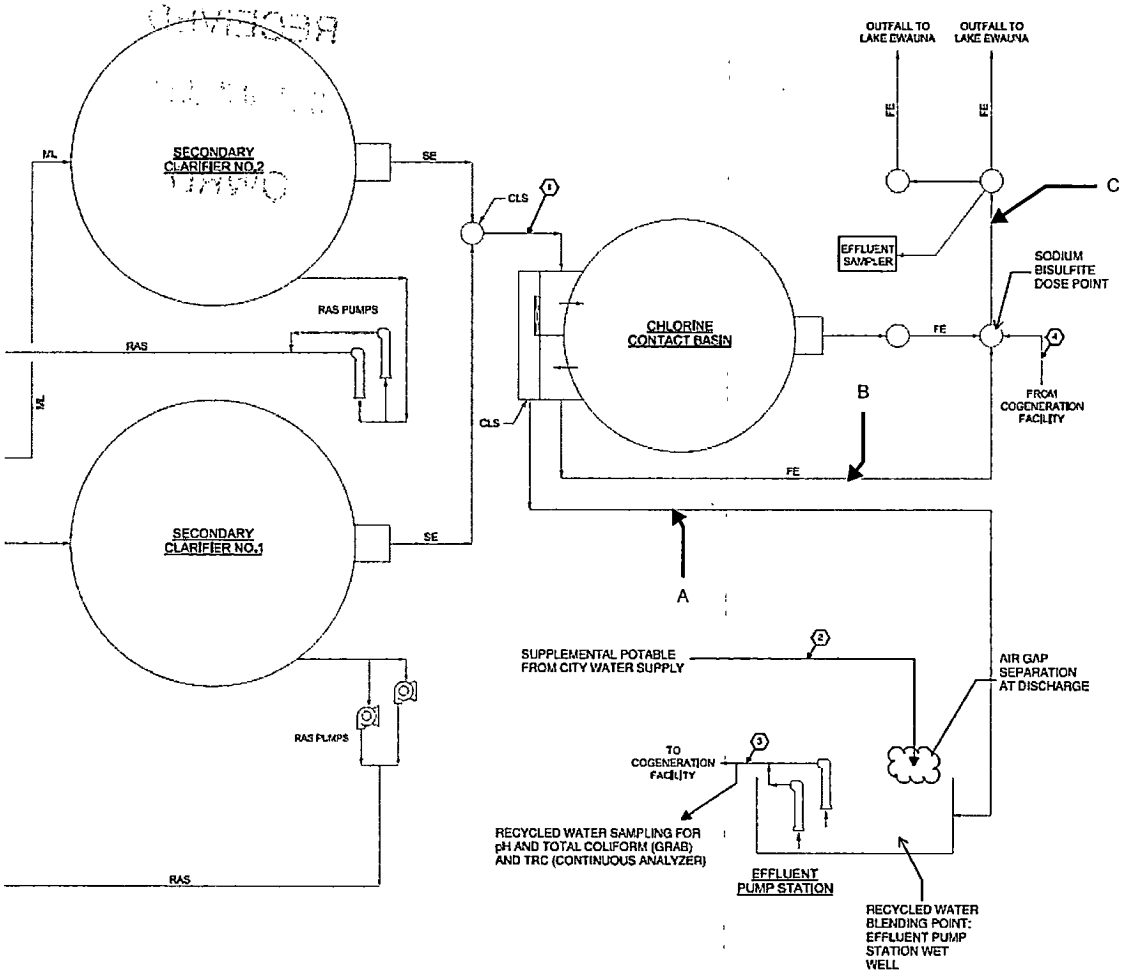
Recycled Water Schematic

LEGEND:
- NEW
- EXISTING
- FUTURE
- NEW STRUCTURE
- EXISTING STRUCTURE

RECYCLED WATER KEY NOTES:
RECYCLED WATER SYSTEM FLOW MEASUREMENT LOCATIONS:
1. SECONDARY EFFLUENT
2. SUPPLEMENTAL POTABLE WATER SUPPLY
3. EFFLUENT PUMP STATION DISCHARGE TO COGEN FACILITY
4. BLOWDOWN RETURN WATER FROM COGENERATION FACILITY



Water Balance			
Location Tag #	Location	Annual Average Flows (MGD)*	Source
	Secondary Effluent	2.84	Flow Meter Measurements
A	Secondary Effluent to Effluent Pump Station for Reuse	2.05	Calculated [3 - 2]
B	Flow through Chlorine Contact Basin	0.79	Calculated [1 - A]
	Supplemental Potable Water Supply	0.32	Flow Meter Measurements
	Effluent Pump Station Discharge (Recycled Water) to Cogen Facility	2.37	Flow Meter Measurements
	Blowdown Return Water From Cogenertion Facility	1.02	Flow Meter Measurements
C	Outfall Flow to River	1.81	Calculated [4 + B]
*Plant flow data from 2013 through 2018			

Attachment C – Recycled Water Supplier and User Site Maps and User Fence Lines

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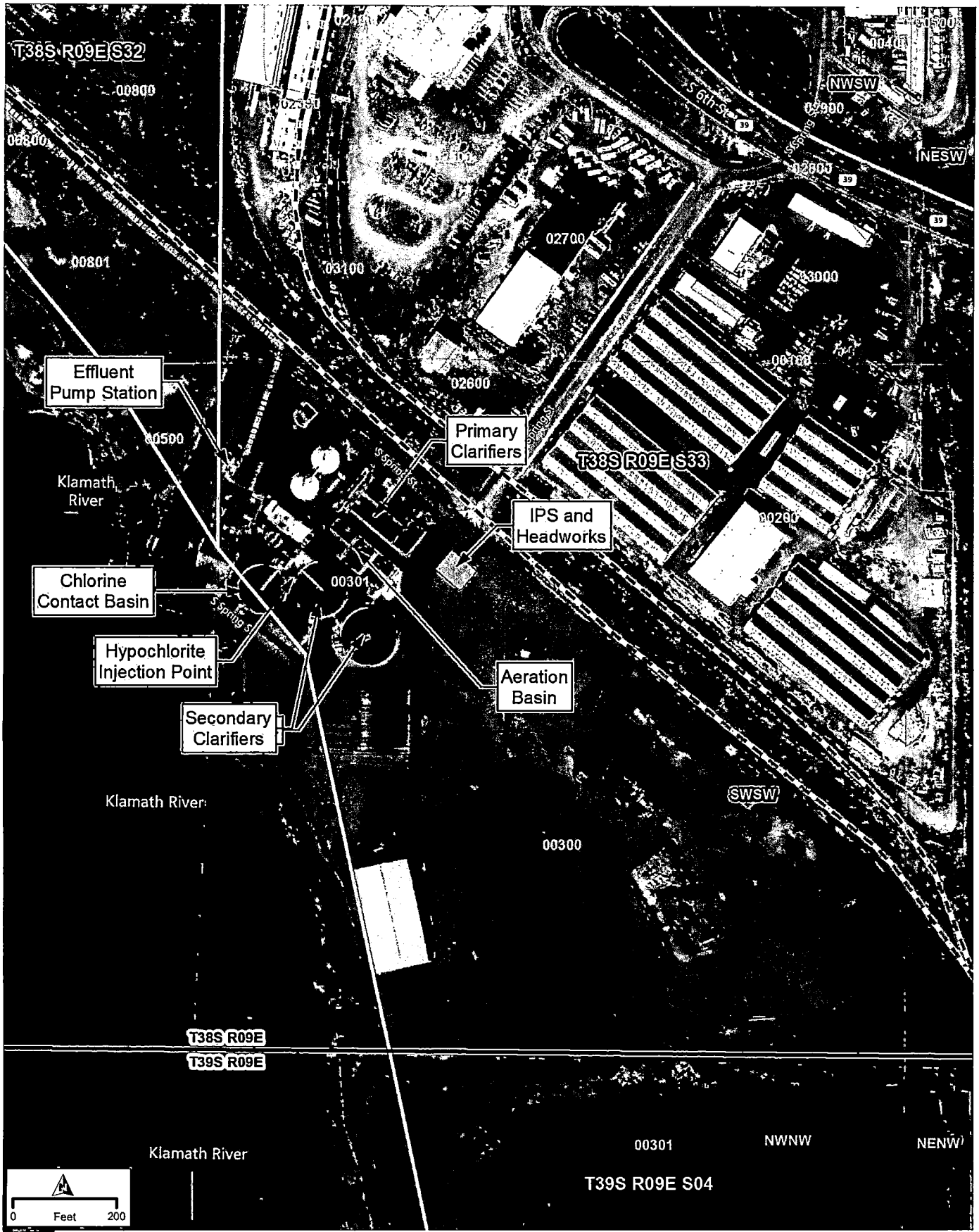
PATH: X:\PROJECTS\CITY_OF_KLAMATH_FALLS\10030568_KLAMATH_FALLS_WWTP\MAP_DOCS\RECYCLED_WATER_LINE_OVERVIEW.MXD - USER: JBEARD - DATE: 8/24/2022

OSWC



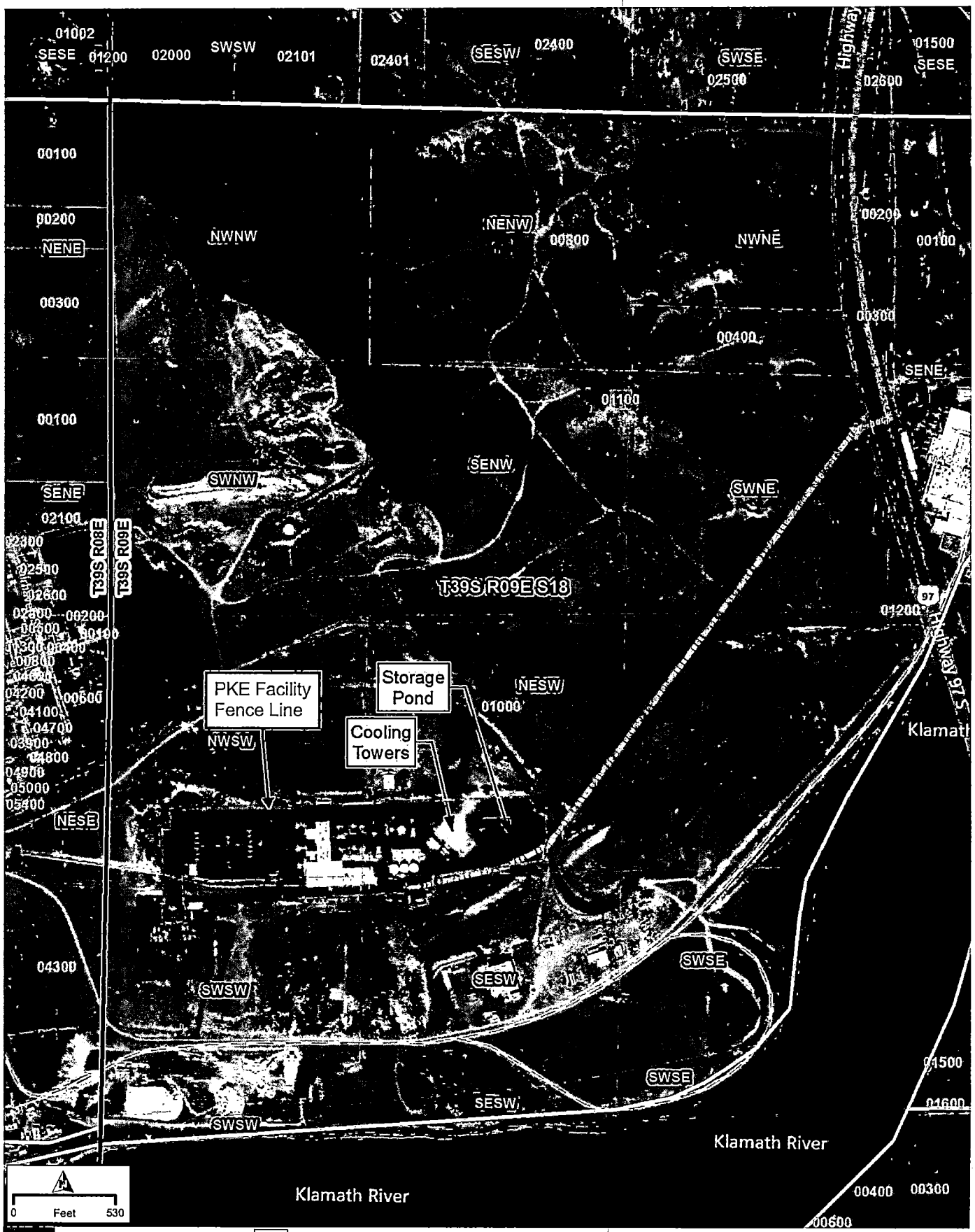
SPRING STREET WWTP

RECEIVED

OCT 03 2022

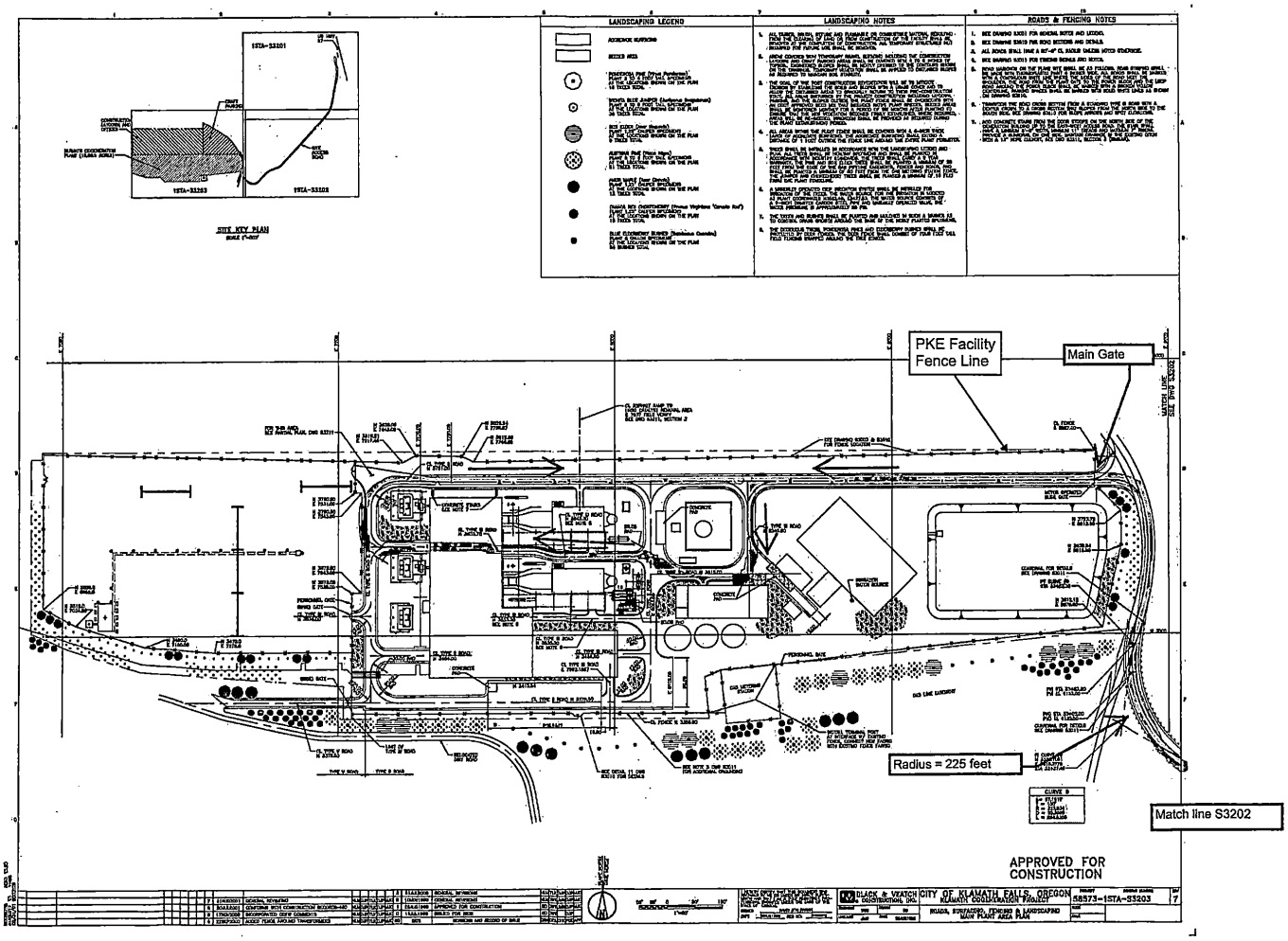
OWRD

PATH: X:\PROJECTS\CITY_OF_KLAMATH_FALLS\10030568_KLAMATH_FALLS_WWTP\MAP_DOCS\RECYCLED_WATER_LINE.MXD - USER: JBEARD - DATE: 8/24/2022



KLAMATH ENERGY COGENERATION FACILITY

PATH: X:\PROJECTS\CITY_OF_KLAMATH_FALLS\10030568_KLAMATH_FALLS_WWTP\MAP_DOCS\RECYCLED_WATER_LINE.MXD - USER: JBEARD - DATE: 8/24/2022



Attachment D – PKE Recycled Water Use Letter

AVANGRID
RENEWABLES

Permit 12-02-2013

Letter No. KCP 22-058
File No. 3.4.4
Klamath Energy, LLC
An Avangrid Renewables Company

15 July 2022

Arjen DeHoop
City of Klamath Falls,
Wastewater/Geothermal Division
1200 Spring Street
Klamath Falls, OR 97601

RECEIVED JUL 15 2022

Dear Mr. DeHoop,

As discussed previously, KCP and KGP have discontinued the use of reclaimed water as a source for irrigation water.

If you have any questions or concerns, please contact Terance Chapman at (541) 850-6131

Sincerely,

Gregory Dolezal
Senior Director

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OCT 03 2022
OWRD

Klamath Energy, LLC
4940 Hwy 97 S – Klamath Falls – OR - 97603
Telephone 541.883.3118, Fax 541.883.3154

Internal Use

RECLAIMED WATER REGISTRATION CHECKLIST

RM (assigned by Kerri): 235 County: Klamath Registrant (User of Water): Klamath Energy LLC

Place of Use:

Twp	Rng	Mer	Sec	Q-Q	GLot	Acres	Location Description	Contract Years in Length
39 S	9E	WM	18	SW 1/4	--	--	PKE FACILITY—STORAGE PONDS /COOLING	25

Amount: 1390 GPM Use: INDUSTRIAL USE # of Acres (if for IR): -- NA WM Dist #: #17

Supplier of the Reclaimed Water: KLAMATH FALLS WWTP DEQ Muni WW Permit #: 100701

Source of Reclaimed Water (Wastewater treatment plant): GROUNDWATER FROM 13 WELLS

Streamcode-140090 Klamath>Pacific Ocean

Point of Diversion: 3.097 CFS

Twp	Rng	Mer	Sec	Q-Q
38 S	9 E	WM	33	SW SW

Agent (*if any*): Justin Sterger

☒ Property Ownership: Does Registrant own all land for the proposed project? ☒ Yes ☐ No

If No: ☐ The affected landowner's name and mailing address is listed. Notes:

☒ The **map** must meet the following minimum requirements.

- ☒ Township, Range, Section
- ☒ Streams and roads identified as they cross through the map
- ☒ Place of use, Q-Qs, and tax lot clearly identified
- ☒ Even map scale of not less than 44" = 1 mile (1" = 1320 ft.)
- ☒ Location of each diversion point (WW Treatment Plant)
- ☒ North Directional Symbol
- ☐ Number of acres per Q-Q if for irrigation, nursery, or agriculture—na USE IS INDUSTRIAL
- ☒ Legend

* *A map showing the wastewater treatment facility, transmission system and place of use at a scale of 4" = 1 mile is fine,* ***only if*** *a second map is provided showing the place of use at not less than 4" = 1 mile.*

- ☒ Signature of ***all*** Registrants and Reclaimed Water Supplier
- ☒ DEQ section (17) is completely filled out and signed
- ☒ Existing Water Rights: Certs-27805-77011

DO NOT send registration back to applicant if it is not complete. ALL registrations go to Joan Smith.

Reviewed by: Joan Smith Date: 3/14/2023

*Remember there is no fee for Reclaimed Water Registrations